

IN THE CLAIMS

1. (Currently amended) A display system, comprising:

a plurality of Light Emitting Diodes (LEDs) forming a display panel, at least some of the LEDs of the display panel capable of sensing and emitting light; operable in an emit mode, and at least some of the LEDs of the display panel operable in a sense mode;

a driving circuit adapted to drive at least some of the LEDs; couple to one of the plurality of LEDs operable in the emit mode and structured to cause the one of the plurality of LEDs operable in the emit mode to emit light; and

a sensing circuit adapted to sense light received at some of the LEDs; and and couple to one of the plurality of LEDs operable in the sense mode and structured to cause the one of the plurality of LEDs operable in the sense mode to sense light energy;

a switch coupled with the driving circuit, sensing circuit and some of the LEDs, to switch some of the LEDs from a sense mode to an emit mode.

a storage circuit structured to store data related to energy received by the sensing circuit; and

a feedback controller coupled to the storage circuit and structured to control the driving circuit based on information stored in the storage circuit.

2. (Currently amended) The display system of claim 1 wherein at least some of the plurality of LEDs of the display are operable in the emit mode and in the sense mode.

3. (Original) The display system of claim 1 wherein one or more of the plurality of LEDs comprises an organic material.

4. (Currently amended) The display system of claim 1 wherein the sensing circuit comprises a reverse bias circuit coupled to the one some of the plurality of LEDs operable in the sense mode.

5. (Currently amended) The display system of claim 1 wherein the sensing circuit is structured to can sense an amount of light energy received by the one any of the plurality of LEDs operable in sense mode.

6. (Currently amended) The display system of claim 1 wherein the sensing circuit is structured to can sense an amount of light energy generated from outside the display panel.

7. (Original) The display system of claim 1 wherein the sensing circuit is coupled to a first LED, and wherein the sensing circuit comprises:

a reverse biasing circuit coupled to a first terminal of the first LED; and
a sensing circuit coupled to a second terminal of the first LED.

8. (Original) The display system of claim 7 wherein the sensing circuit comprises a sense amplifier.

9. (Original) The display system of claim 1 wherein the driving circuit is adapted to be coupled to a first group of LEDs operable in the emit mode while not being coupled to a second group of LEDs operable in the emit mode.

10. (Original) The display system of claim 9 wherein the first group of LEDs are all in a same row of the display panel.

11. (Previously presented) The display system of claim 1 wherein the driving circuit is adapted to be coupled to a row of LEDs operable in the emit mode while the sensing circuit is adapted to be coupled to a row of LEDs operable in the emit mode, the row of LEDs operable in the emit mode being adjacent to the row of LEDs operable in the sense mode.

12. (Original) The display system of claim 1, further comprising:
an LED brightness adjusting circuit coupled to both the sensing circuit and the driving circuit, and configured to modulate a brightness of an output of an LED in the display panel operable in the emit mode based on a signal received from an LED in the display panel operable in the sense mode.

13. (Original) The display system of claim 12 wherein the LED of the display panel operable in the sense mode is configured to sense light from a source external to the display panel.

14. (Original) The display system of claim 12 wherein the LED of the display panel operable in the sense mode is configured to sense light from the LED in the display panel operable in the emit mode.

15. (Original) The display system of claim 1, further comprising:
a uniformity calibration circuit coupled to both the sensing circuit and the driving circuit, and configured to adjust the output of an LED in the display panel operable in the emit mode based on the output of another LED in the display panel operable in the emit mode that is sensed by an LED in the display operable in the sense mode.

16. (Original) The display system of claim 15 wherein the uniformity calibration circuit is a gamma uniformity calibration circuit and is operable to adjust the output of the LED in the display panel operable in the emit mode over a range of output intensities.

17. (Original) The display system of claim 1, further comprising:
a position circuit coupled to the sensing circuit and structured to determine a position on the display panel at which an external light source is pointing.

18. (Currently amended) The display system of claim 17 wherein the position circuit is configured to compare outputs of one or more LEDs in the display panel operable in the sense mode.

19. (Original) The display system of claim 17, further comprising an image generator coupled to the position circuit, the image generator structured to generate an image responsive to an output from the position circuit.

20. (Original) The display system of claim 1 wherein one or more of the plurality of LEDs are Stacked Organic Light Emitting Diodes (SOLED).

21. (Original) The display system of claim 1 wherein one or more of the LEDs of the display panel operable in the sense mode are Stacked Organic Light Emitting Diodes (SOLEDs).

22. (Original) The display system of claim 21, wherein the sensing circuit comprises a plurality of separate layer sensing circuits respectively coupled to separate organic layers in the one or more SOLEDs, and wherein the sensing circuit is structured to signal from which of the separate organic layers in the one or more SOLEDs light energy is being sensed.

Claims 23 - 27 are cancelled.

28. (Currently amended) A method for operating a display system that includes a display device having one or more diodes structured to generate electroluminescent light, and having one or more diodes structured to sense light energy shining on them, the method comprising:

determining a first percentage of a duty cycle for driving the diodes;

driving the diodes structured to generate light to cause an image to be shown on the display device according to the first percentage;

configuring a second percentage of the duty cycle for measuring light shining on the diodes, the first percentage not equal to the second percentage; and

measuring an amount of light energy shining on the diodes structured to sense light energy according to the second percentage; and

wherein at least one diode is both driven in the first portion of the display cycle and senses light energy in the second portion of the display cycle.

29. (Original) The method of claim 28 wherein driving the diodes and measuring an amount of light energy occurs simultaneously.

30. (Original) The method of claim 28 wherein driving the diodes occurs during a first portion of a display cycle and wherein measuring an amount of light energy occurs during a second portion of the display cycle.

31. (Currently amended) The method of claim 30 wherein at least one each diode is both driven in the first a portion of the display cycle and senses light energy in the second a portion of the display cycle.

32. (Original) The method of claim 28 wherein measuring an amount of light energy comprises measuring an amount of light energy generated by driving the diodes structured to generate light.

33. (Original) The method of claim 28, further comprising:
adjusting an overall brightness of the display device based on the amount of light energy falling on the light sensing diodes.

34. (Original) The method of claim 33 wherein adjusting an overall brightness of the display comprises modulating a signal used to drive the diodes structured to generate light.

35. (Original) The method of claim 28, further comprising:
sensing an amount of light generated by a particular diode in the display device; and
adjusting a driving signal used for driving the particular diode.

36. (Original) The method of claim 35 wherein adjusting a driving signal used for driving the particular diode comprises adjusting a driving signal used for driving the particular diode at several points along a gamma curve of the particular diode.

37. (Original) The method of claim 28, further comprising detecting a position on the display device of where an external pointing device is shining.

38. (Original) The method of claim 37 wherein the external pointing device is a laser pointer.

39. (Original) The method of claim 37, further comprising generating an image on the display device based on a signal detected from the external pointing device.

40. (Currently amended) The system of claim 1, further comprising a comparator and a storage circuit, the comparator structured to compare values to values retrieved from the a storage circuit structured to store data related to energy received by the sensing circuit.

41. (Previously presented) The system of claim 40, further comprising a locator circuit coupled to the storage circuit and structured to determine a position of a light source shining on the display panel.

42. (Currently amended) The system of claim 40, wherein the storage circuit comprises:
data from one or more previous sensed cycles of the plurality of LEDs.

43. (Currently amended) The system of claim 40 wherein the storage circuit comprises permanent data storage.

44. (Previously presented) The system of claim 42 wherein the storage circuit comprises data stored during the manufacture of the display.

45. (Previously presented) The system of claim 1 wherein the driving circuit comprises a multiplexer structured to power some of the plurality of LEDs in sequence.

46. (Previously presented) A position determiner for an OLED display, comprising:
a plurality of diodes located in columns and rows, at least some of the plurality operable in both an emitting and a sensing mode;
driving circuitry coupled to the plurality of diodes and structured to drive diodes in the emitting mode so as to cause an image to be shown on the display;
sensing circuitry coupled to the plurality of diodes and structured to cause diodes to be in the sensing mode and to generate data signals indicative of energy sensed by the diodes;
a data storage unit structured to store the data signals;
a position locator coupled to the data storage unit and including a comparator structured to compare data sensed by the diodes in the sensing mode.

47. (Previously presented) The position determiner of claim 46, wherein the position locator is structured to compare data retrieved from the data storage unit to the data signals.